Theertham In Temples: Sacred Water With Spiritual And Medicinal Significance - W.S.R To Gara Visha

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Abstract:

Theertham is the sanctified water given in Hindu temples which is of spiritual and medical significance. It is believed to cleanse the body and soul; however, the focus here is on the purification of the body. The ingredients of *theertham* is proved to provide incidental health benefits. *Garavisha* is concept elaborated by Ayurveda that specifies the use of *visha* daily in small quantities and its effects on *Ojas*. This can be correlated with the daily consumption of chemicals and gradual diminution of immunity. The ingredients of the *theertham* were verified and articles related to its medical benefits were screened and data was obtained. The drugs used to prepare the *theertham* are proven to antioxidant properties and other properties that increase the overall immunity of the individual. This spiritual water is not only a figurative mean to convey devotion but also has properties that cleanse the body and also have psychological effects on individuals.

Keywords: Theertham, Garavisha, Antioxidant, Oxidative stress.

Introduction

Within the extensive and intricate tapestry of Hindu rituals, where most of them are considered to be of just mythological or spiritual significance, theertham offering in temples holds the pedestal that serves as a symbol that not all rituals are spiritual but many are of medicinal value too. While more focus has been on the waters from sacred rivers like the Ganga, Yamuna etc. and temple tanks that are being given as theertham, a less explored but immensely important category is the prepared theerthams. These theerthams are waters infused with herbs stored in special vessels that are more than just ritualistic liquids; they are capable of healing ailments and what one can call a daily dose of detox. From the Tulasi theertham of South India to the Ksheerabdi Theertham of North India, different temples prepare different Theerthams with different ingredients.

In Ayurveda, *Yogratnakar* explains two types of *Visha* (poison) under *Kritrima Visha* (artificial poison), namely *Dushi Visha* – One that is poison before it enters the body and the other *Gara Visha* – One that becomes poison after it enters the body [(1)]. This *Gara Visha* is not instantaneously poisonous after entering the body, *Yogaratnakar* opines that it takes at least 15 days to act after it enters the body only through slow accumulation. Daily consumption of such substances in small quantities accumulates in the body, takes seat in *marma* (Vital spots) and undermines the overall immunity of the person leading to diseases [(1)]. *Aacharya Vagbhata* opines that women administered *Gara Visha* to their husbands or kings in order to gain their favours or by the instigation by foes [(2)]. Now, this is not a common practice in the current era however, there are some substances that people consume without the instigation by others which increase the oxidative stress in the body which leads to many diseases.

Materials And Methods:

The data on *Theerthams* and its ingredients are collected from books, articles from Google Scholar, Pubmed, Web of Science and personal interviews from people who visit temples from different states of India. The collected data is scrutinized and arranged appropriately to establish the importance of *theertham* in reducing oxidative stress through the perspective of *Gara Visha*.

Regional Variation In Theertham:

Regional variation of Theertha in Indian temple tradition vividly reflects diverse theological cultural and ecological landscapes across the Indian subcontinent. Theertham plays a central role in temple rituals mainly within Vishnu and Shiva temples across southern states like Tamil Nadu and Andhra Pradesh. It gets tied often near temple tanks and during festivals like Theerthavari where deity's idol gets bathed vigorously in tank water afterwards being distributed freely [(3)]. Ganga water often serves as theertham in North Indian temples such as revered Kashi Vishwanath mirroring deep reverence for this sacred river. Preparation becomes eerily simplistic yet remains utterly revered [(4)]. Tulasi theertha features prominently in Vaishnava temples particularly those situated in Tamil Nadu and Karnataka regions of south India. North Indian temples mainly in Uttar Pradesh prioritize Gangajal drawn from Ganges revered for intrinsic purificatory potency and often used raw. Charanamrit a milk-based concoction in Eastern India. Panchamrita a sacred concoction comprising milk curd ghee honey and sugar dominates Western India's temples.

Preparation of Theertham:

Theertham typically originates from sacred sources like Swami Pushkarini at Tirupati or Ganga at Varanasi namely temple tanks wells or rivers. Sanctification occurs via offerings made during puja often uttering mantras fervently before a deity in reverent supplication. Theertham gets mixed with sacred ingredients like tulsi in Vishnu temples or bilva leaves in Shiva temples occasionally. Offerings of

panchamrita are made as theertham on special occasions usually in copper silver or brass vessels.

In South Indian temples, this practice is deeply institutionalized. Holy basil, cardamom, clove, edible camphor, nutmeg and saffron are ground and added to water and stored in either copper or silver vessels. This is then offered to devotees who visit the temple.

Modern Life Gara Visha:

Oxidative stress happens when production of reactive oxygen species outpaces bodily ability to neutralize them or heal subsequent cellular damage. Reactive oxygen species are super reactive molecules with oxygen like superoxide O_2^- and hydrogen peroxide H_2O_2 and hydroxyl radicals OH^- existing freely. Cellular damage occurs pretty frequently due to this imbalance harming lipids proteins and DNA and gets implicated in various nasty diseases[5].

Oxidative stress arises from an excess of ROS due to either increased production or inadequate antioxidant defenses. Key causes include:

Exposure to pollutants, UV radiation, cigarette smoke, and heavy metals increases ROS production. Example: Air pollutants like ozone and particulate matter induce ROS in lung tissues.

Lifestyle Factors:

Poor diet (high in processed foods, low in antioxidants), excessive alcohol consumption, and smoking elevate ROS levels. Chronic stress and lack of physical activity impair antioxidant defenses.

Metabolic Processes:

Normal cellular processes, such as mitochondrial respiration, produce ROS as byproducts. Enzymatic activities (e.g., xanthine oxidase, NADPH oxidase) generate ROS during metabolism.

Pathological Conditions:

Inflammation, infections, and chronic diseases (e.g., diabetes, obesity) increase ROS production. Mitochondrial dysfunction in aging or disease states amplifies ROS generation[5].

Oxidative stress involves complex pathways where ROS interact with cellular components, leading to damage or signaling alterations.

Key pathways include:

Mitochondrial ROS Production:

Mitochondria are the primary source of ROS during oxidative phosphorylation. Electron leakage from the electron transport chain (ETC) generates superoxide, which can be converted to H_2O_2 by superoxide dismutase (SOD). Excessive ROS damages mitochondrial DNA, proteins, and lipids, impairing energy production and amplifying ROS generation.

NADPH Oxidase Pathway:

NADPH oxidases (NOX enzymes) produce ROS in response to inflammatory signals, growth factors, or cytokines. This is prominent in immune cells like neutrophils during the respiratory burst. Antioxidant Defense Systems:

Enzymatic antioxidants (e.g., SOD, catalase, glutathione peroxidase) and non-enzymatic antioxidants (e.g., vitamin C, vitamin E, glutathione) neutralize ROS. Oxidative stress occurs when antioxidant capacity is overwhelmed, leading to oxidative damage.

Signaling Pathways:

ROS act as signaling molecules, activating pathways like NF-κB, MAPK, and PI3K/Akt, which regulate inflammation, apoptosis, and cell proliferation. Dysregulation of these pathways contributes to disease progression. Lipid Peroxidation and Protein/DNA Damage:

ROS attack polyunsaturated fatty acids in cell membranes, leading to lipid peroxidation and membrane dysfunction. Protein oxidation alters enzyme activity, while DNA damage causes mutations or apoptosis[6].

Results:

1. Tulsi (Ocimum sanctum) Key Antioxidant Compounds: Eugenol, orientin, vicenin, rosmarinic acid, apigenin, ursolic acid, and flavonoids.

Antioxidant Pathways: Phenolic compounds such as rosmarinic acid and eugenol are capable of free radical scavenging, donating electrons to neutralize superoxide, hydroxyl, and peroxide radicals[7].

Enzyme Modulation: Tulsi improves the activity of endogenous antioxidant enzymes like SOD, CAT, and GPx, which eliminate ROS, and thus, has been shown to enhance their activity[8].

Nrf2 Activation: Ursolic acid and flavonoids are known to activate the Nrf2 pathway leading to the transcription of antioxidant genes including heme oxygenase-1 (HO-1) thus prompting the expression of these enzymes.

Metal Chelation: Flavonoids prevent Fenton reactions, which produce hydroxyl radicals, by chelating with iron or copper.

Mechanism Summary: Tulsi's antioxidants directly neutralize ROS, enhance protective enzymatic systems, and inhibit oxidative damage through chelation of metal ions.

2. Edible camphor's (Cinnamomum camphora) Key antioxidant compounds are camphor, linalool, 1,8-cineole, borneol, and some terpenoids.

Antioxidant pathways include free radical scavenging where camphor and some terpenoids scavenge superoxide and peroxyl radicals, which is a form of ROS, due to terpenoid structures that donate electrons.[9].

Lipid Peroxidation Inhibition: Linalool and 1,8-cineole defend cell membranes from lipid peroxidation, a process where ROS attack polyunsaturated fatty acids.

Enzyme Support: Camphor increases SOD and CAT activity, enhancing the body's potential to detoxify superoxide and hydrogen peroxide[10].

Anti-inflammatory Synergy: Camphor possesses some anti-inflammatory properties which act against ROS resulting from immune cells, thus camphor's antioxidant effects are reduced.

Mechanism Summary: Edible camphor's terpenoid-rich profile drives moderate radical scavenging and protection against lipid peroxidation, with some enzymatic support. Note: Edible camphor differs from toxic synthetic camphor and is used with caution in culinary practices in some cultures.

3. Clove (Syzygium aromaticum) Important Antioxidant Components: Eugenol, eugenyl acetate, gallic acid, flavonoids, and tannins.

Antioxidants Actions: Potent ROS Scavenging: Phenolic hydroxyl groups attached to eugenol, a vital phenolic

compound in clove, bestows the ability towards very high radical scavenging against DPPH, hydroxyl, and superoxide radicals[11].

Lipid Peroxidation Inhibition: Gallic acid and eugenol not only scavenge radicals but also inhibit oxidative damage to lipids in cell membranes which helps to stabilize cellular structures [12].

Enzyme Upregulation: Clove increases the activities of insulin-dependent SOD, CAT, and GPx which reduces the oxidative stress on cells.

Nrf2 Pathway: Clove polyphenols activate Nrf2 and stimulate the expression of antioxdidant genes such as GST and NQO1.

Mechanism Summary: High content of eugenol in cloves directly contributes to its phenomenal antioxidant properties which are exerted through direct scavenging, modulation of enzymes, and Nrf2 pathway activation.

4. Cardamom (Elettaria cardamomum) Key Antioxidant Compounds: 1,8-cineole, α-terpineol, linalool, quercetin, and phenolic acids.

Antioxidant Pathways: Free Radical Neutralization: Quercetin and phenolic acids detoxify ROS like hydroxyl and peroxyl radicals using electrons.

Enzyme Enhancement: Cardamom boosts SOD, CAT, and GR (glutathione reductase) activity, supporting redox balance [13].

Metal Chelation: Quercetin, as a flavonoid, complexed with some metallic ions and as a result hindered generation of reactive oxygen species through Fenton reaction flavonoid oxidation [14].

Anti-inflammatory Effects: 1,8-cineole cuts down inflammation and thus lessens inflammation-induced oxidative stress.

Mechanism Summary: The main constituent antioxidants of cardamom which are mostly flavonoids and terpenoids counteract ROS, bolster enzymatic defenses, and curb inflammation.

5. Nutmeg (Myristica fragrans) Key Antioxidant Compounds: Myristicin, eugenol, elemicin, sabinene, and lignans.

Antioxidant Pathways: Myristicin and eugenol are effective in neutralizing free radicals including superoxide and nitric oxide because of their phenolic structures.

Lipid Peroxidation Inhibition: Lignans and eugenol have anti-oxidative effects which protect membrane lipids from oxidative damage [9].

Enzyme Modulation: Nutmeg enhances SOD and GPx activity, which supports the metabolism of superoxide and peroxides.

Nrf2 pathway: Some authors suggest that phenolic compounds can activate Nrf2, which leads to increased expression of antioxidant enzymes[10].

Mechanism Summary: The antioxidant activity of nutmeg results from the phenolic and terpenoid compounds that it contains which are able to scavenge free radicals, protect lipids and aid in enzymatic defenses.

6. Saffron (Crocus sativus) Key Antioxidant Compounds: Crocin, crocetin, safranal, and flavonoids.

Antioxidant Pathways: Direct ROS Scavenging: Crocin, a carotenoid, is highly effective at quenching singlet oxygen and peroxyl radicals due to its conjugated double-bond system.

Enzyme Upregulation: Crocin and crocetin enhances SOD, CAT, and GPx activity, which strengthens cellular antioxidant defenses[9].

Nrf2 Activation: Crocetin stimulates the Nrf2 pathway and increases the expression of some antioxidant genes like HO-1 and GST.

Metal chelation: Flavonoids in saffron bind metal ions and thus decrease the generation of ROS through Fenton reactions[10].

Mechanism summary: Carotenoids and flavonoids from saffron provide strong antioxidant defense by direct ROS scavenging, enzyme upregulation as well as Nrf2-dependent gene expression.

Sr. No.	Spice	Major Antioxidant Compounds	Mechanism of Action	Pathway Involved
1	**Tulsi** (*Ocimum sanctum*)	Eugenol, Rosmarinic acid, Apigenin	Free radical scavenging, ↑ SOD, CAT, GPx, ↓ lipid peroxidation	Nrf2/ARE activation
2	**Edible Camphor** (*Cinnamomum camphora*)	Camphor, Borneol, Cineole	ROS scavenging, ↑ antioxidant enzymes, ↓ oxidative stress	Nrf2 modulation
3	**Clove** (*Syzygium aromaticum*)	Eugenol, Gallic acid, Quercetin	Potent ROS scavenger, ↑ SOD, CAT, ↓ lipid peroxidation	Nrf2/ARE activation
4	**Cardamom** (*Elettaria cardamomum*)	1,8-Cineole, α-Terpineol, Quercetin	Scavenges ROS, ↑ antioxidant enzymes, ↓ MDA	Likely Nrf2 pathway
5	**Nutmeg** (*Myristica fragrans*)	Myristicin, Eugenol, Malabaricone C	Scavenges ROS, ↓ lipid peroxidation, ↑ SOD, CAT	Nrf2/ARE activation
6	**Saffron** (*Crocus sativus*)	Crocin, Crocetin, Safranal	Potent ROS scavenging, ↑ antioxidant enzymes, ↓ MDA	Nrf2/ARE activation

CONCLUSION:

Theertham, also referred to as sacred water, occupies a foundational position in Hindu ritual traditions as a means of both a spiritual pathway and a symbol of purification. It is customary to prepare sacred water (theertha) in temples where, alongside religious sanctity, theertha also contains medicinal ingredients, creating a nexus between ritual healthcare practice.

This is especially relevant when examining traditional views of toxins, such as Gara Visha. Most notably, theertham's temple preparation ingredients like Tulasi (Ocimum sanctum), cardamom, clove, edible camphor, nutmeg, and saffron are known in Ayurveda to have antioxidant, antimicrobial, and detoxifying properties. Theertham, therefore, has dual utility—spiritual and ritualistic—as these substances are employed not solely for their religious connotations but also to counteract toxins and bolster immune function.

Furthermore, theertham's ritual context where the water is blessed with Vedic mantras, given post deity worship, bestows psychosomatic effects. Devotees regard the sacred water as imbued with both physical wellness and spiritual protection, triggering placebo-augmented healing. This supports recent ethnographic research arguing ritual practices tend to heighten faith-based healing through principles of natural substances.

Therefore, the theertham can be understood not merely as a symbolic liquid but as a ritually sanctified decoction with scientifically defensible properties. Its ingredients present compelling parallels with Ayurvedic approaches to Gara Visha management, offering a culturally integrated model of preventive health. This synthesis of spiritual and medicinal perspectives underlines the enduring relevance of temple theertha in India's holistic health traditions.

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Conflict of Interest: Nil

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